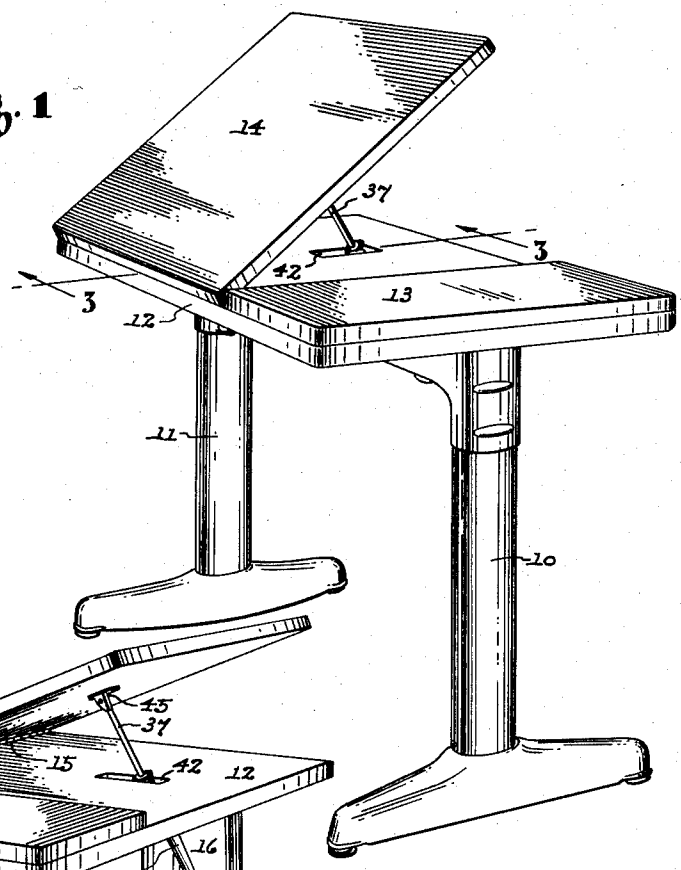
July 15, 1958 W. E. NORDMARK 2,843,226

ADJUSTABLE TILT TOP TABLE

Filed April 11, 1956 2 Sheets-Sheet 1

Fig. 1



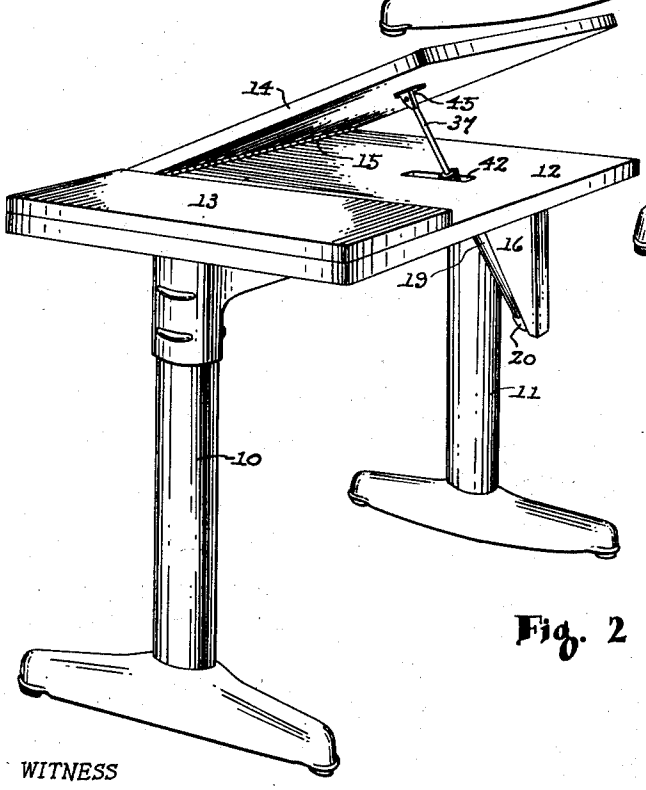


Fig. 2

INVENTOR

Walter E. Nordmark

WITNESS

Harvey D. Rowley

BY John S. Braddock

ATTORNEY

July 15, 1958 W. E. NORDMARK 2,843,226

ADJUSTABLE TILT TOP TABLE

Filed April 11, 1956 2 Sheets-Sheet 2

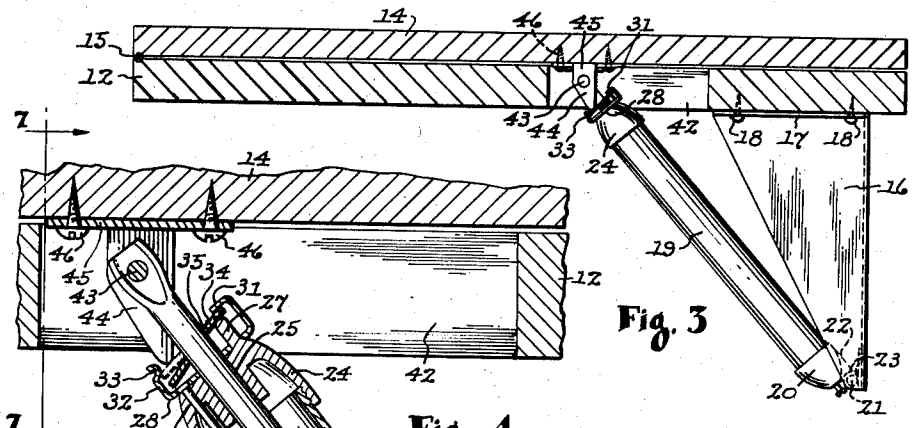


Fig. 3

Fig. 4

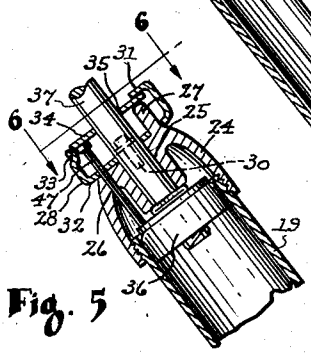


Fig. 5

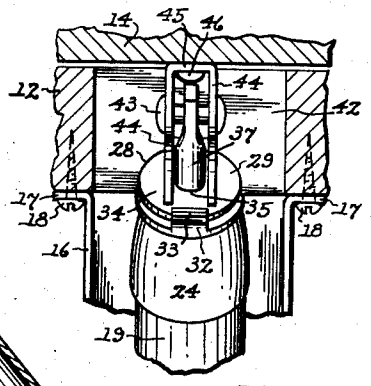


Fig. 7

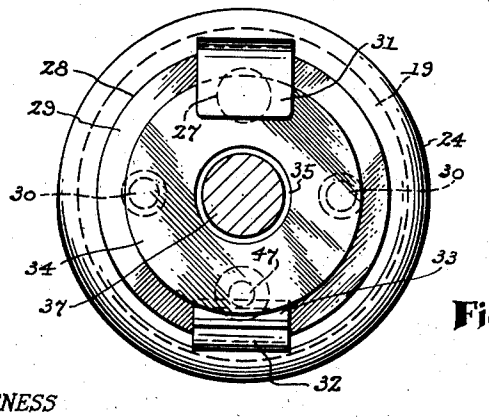


Fig. 6

WITNESS

Harvey J. Rosely

INVENTOR

Walter E. Nordmark

BY John S. Braddock

ATTORNEY

United States Patent Office 2,843,226 Patented July 15, 1958

2,843,226

ADJUSTABLE TILT TOP TABLE

Walter E. Nordmark, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich., a corporation of New Jersey

Application April 11, 1956, Serial No. 577,557

7 Claims. (Cl. 188—67)

The present invention relates to an adjustable tilt top table or the like.

The primary objects of the invention are to provide a table or the like having a top which can be adjusted to tilt rearwardly-upwardly at any selected angle of inclination, so as to facilitate certain tasks, and particularly art work; to provide a novel, automatic checking device whereby such a tilt top may be elevated to the desired adjusted position and automatically supported in such position, and which device will operate automatically when the top is raised to its extreme elevated position and released to permit the tilt top to descend to level position in a cushioned, quiet manner; and in general to provide such a tilt top table which is efficient in operation, reasonably economical in manufacture and attractive in appearance.

An illustrative embodiment of the invention is shown in the accompanying drawings, wherein:

Figure 1 is a front and side perspective view of the new table with the tilt top in an adjusted position of inclination;

Figure 2 is a rear and side perspective view of the same;

Figure 3 is a vertical sectional view of parts thereof taken on line 3—3 of Figure 1;

Figure 4 is an enlarged fragmentary central vertical sectional view of parts thereof;

Figure 5 is a fragmentary sectional view of certain parts seen in Figure 4, some of said parts being here shown in different moved positions;

Figure 6 is a greatly enlarged sectional view thereof taken on line 6—6 of Figure 5; and

Figure 7 is a fragmentary vertical sectional view of parts thereof taken on line 7—7 of Figure 4.

Referring now in detail to these drawings, the table there shown generally comprises a pair of supporting standards 10, 11 on the upper ends of which is fixedly mounted a sub-top 12, one side portion of which is covered by a stationary top 13 fixedly secured thereto, and the other side portion of which is provided with the tilt top 14 the lower front edge of which is hingedly connected to the upper front edge of the sub-top 12 by means of a piano-type hinge 15. When the tilt top 14 is fully lowered to level position its upper surface is flush with that of the stationary top 13.

A bracket 16 of cross-sectionally U-shape and provided with upper flanges 17 is dependingly secured by means of wood-screws 18 to the rear underside of the sub-top 13 opposite the middle of the tilt top's hinged lower front edge. A cylinder 19 is provided with a threaded closure 20 at its lower rearward end, the cylinder being pivotally connected to the lower end of bracket 16 by means of a pivot pin 21 passing through an ear 22 on the closure and journalled in spaced bearings of a U-shaped bearing member 23 secured as by welding to the bracket. The cylinder 19 extends forwardly-upwardly from this pivotal connection to the bracket 16, and is provided at its upper end with a threaded cap 24 having a central longitudinal

bearing 25 therein, an aperture 26 therethrough spaced below the bearing 25 and parallel thereto, and a projection 27 extending forwardly-upwardly from the cap 24 above the bearing 25.

A clip generally designated 28 has a circular middle portion 29 secured to the outer end of the cap 24 by means of screws 30, said circular middle portion of the clip having apertures therethrough registering with the bearing 25 and aperture 26 of the cap 24. The clip has an upper arm 31 which extends forwardly-upwardly from the clip's middle portion 29 and then downwardly to form a gap between it and the projection 27 on the cap 24. The clip 28 has also a lower arm 32 which extends forwardly-upwardly and terminates in a formed spring latch 33 opposite the gap between the upper arm 31 and projection 27.

A stop washer 34 having a circular central opening 35 therethrough is fulcrumed in the gap between the cap's projection 27 and the clip's upper arm 31. This stop washer 34 is thus movable to a raised inoperative location above the spring latch 33 as seen in Figure 5, and is also movable to a lowered operative location below the spring latch 33 as seen in Figure 4. The spring latch 33 is adapted to confine the stop washer 34 to one or the other of these locations.

A piston 36 is slidably disposed in the cylinder 19 and is of the conventional type used in bicycle pumps and door checks. A piston rod 37 has its lower rearward end connected to the piston 36 by means of a threaded nut 38 which clamps the piston between washers 39, 40 and against a shoulder 41 on the piston rod. The piston rod extends forwardly-upwardly through the cylinder 19, through the bearing 25 in cap 24 and the aperture in clip 28 registering with said bearing, through the circular central opening 35 in stop washer 34 which opening 35 is slightly larger than the diameter of the piston rod, and through a void 42 in the sub-top 12. The upper end of the piston rod 37 is pivotally connected by a pivot pin 43 to spaced depending lugs 44 of a yoke 45 secured by woodscrews 46 to the underside of the tilt top 14.

A pin 47 is slidably disposed in the aperture 26 through the cap 24 and extends through the aperture in the clip 28 which registers with aperture 26. This pin 47 is adapted for contacting the piston 36 when the piston rod 37 reaches its extreme limit of outward movement.

An air passage 48 extends through the cylinder's lower closure member 20, and an adjustment screw 49 is provided whereby the flow of air into or out of cylinder 19 may be regulated.

Operation

With the tilt top 14 in its lowered position resting on the table's sub-top 12, the various parts are in their positions seen in solid lines in Figure 4. When the tilt top is swung upwardly about its hinge 15, piston rod 37 is drawn outwardly of the cylinder 19 during which movement the stop washer 34 swings upwardly as seen in dotted lines in Figure 4 to a position wherein it is substantially normal to the piston rod thus permitting free passage of the piston rod through the stop washer. When the tilt top has been raised to the desired angle of inclination and is released, its weight causes the stop washer 34 to swing downwardly again, in which position it binds against the piston rod 37 to prevent the rod's passing inwardly through the stop washer and the tilt top is thus supported at the selected angle of tilt.

When it is desired to lower the tilt top to its level position, it is first raised to its extreme limit of tilt. The piston 36 then contacts pin 47 to move the pin upwardly as seen in Figure 5, and the pin in turn moves the stop washer 34 upwardly beyond the spring latch 33, which

confines the washer, to its inoperative location wherein it is again substantially normal to the piston rod **37**. Upon release of the tilt top it is permitted to descend to its lowered position, the piston rod **37** passing freely through the now inoperative stop washer **34**. Descent of the tilt top is cushioned by the retarded flow of air around piston **36**.

When the tilt top **14** reaches its extreme lowered position resting on the sub-top **12**, the lugs **44** of yoke **45** contact the stop washer **34** to again move it downwardly past the spring latch **33** which again confines the washer to its operative location wherein it may swing to permit free raising movement of the tilt top but prevent lowering movement thereof.

Other uses might be found for the checking device of this invention, and while but one specific application and embodiment thereof have been herein shown and described, it will be understood that numerous details may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. An automatic checking device for permitting movement in one direction of a first element relative to a second element while checking movement thereof in the opposite direction, said device comprising: a cylinder mounted on said second element and extending toward said first element; a piston in the cylinder; a piston rod connected to said piston and to said first element; and a stop washer swingably mounted on the cylinder and having an opening therethrough through which extends said piston rod, said washer having an operative location wherein it may swing to a position substantially normal to the piston rod to permit free passage of the piston rod therethrough in one direction or swing to another position binding said washer against the piston rod to prevent passage of the latter therethrough in the opposite direction, said stop washer being movable also to an inoperative location substantially normal to the piston rod wherein it permits free passage of the piston rod therethrough in said opposite direction; and a spring latch on the cylinder for confining said stop washer in either its operative location or its inoperative location.

2. An automatic checking device according to claim 1 characterized by having means on the cylinder for moving the stop washer to its inoperative location when the first element reaches its extreme limit of movement away from the second element and by having means on the first element for returning the stop washer to its operative location when the first element reaches its extreme limit of movement toward the second element.

3. An automatic checking device for permitting movement in one direction of a first element relative to a second element while checking movement thereof in the opposite direction, said device comprising: a cylinder mounted on said second element and extending toward said first element; a cap on the cylinder's end nearest the first element having a central longitudinal bearing therein and a projection spaced from the bearing and extending toward the first element; a clip secured to the cap and having an arm extending beyond said projection to form a gap between the arm and the end of the projection; a stop washer having a central opening therethrough, said washer being fulcrumed in said gap for swinging movement; a piston in the cylinder; a piston rod secured to the piston and extending through the central bearing in said cap and through the central opening in said stop washer, said rod having its outer end connected to said first element; and a spring latch on said cap adapted to confine the stop washer to an inner operative location wherein said stop washer may swing to a position substantially normal to the piston rod to permit free passage of the piston rod outwardly through the stop washer or swing to another position binding it against the piston rod to prevent passage of the piston rod inwardly through the stop washer.

4. An automatic checking device according to claim 3 characterized by having the spring latch also adapted to confine the stop washer to an outer inoperative location substantially normal to the piston rod wherein it permits free passage of the piston rod inwardly through the stop washer.

5. An automatic checking device according to claim 4 characterized by having a pin slidably mounted in said cap and adapted to move the stop washer to its outer inoperative location when said pin is contacted by the piston in the extreme outwardly extended position of the piston rod, and by having a lug fixedly mounted on the first element adapted to move the stop washer to its inner operative location when the piston rod reaches its extreme inwardly retracted position.

6. An automatic checking device according to claim 4 characterized by having the end of the cylinder adjacent said second element provided with a closure, an air passage through said closure in the adjacent end of the cylinder, and an adjustment screw extending into said air passage whereby the flow of air into or out of the cylinder may be regulated.

7. An automatic checking device for permitting swinging movement in one direction of a first element hinged to a second element while checking swinging movement thereof in the opposite direction, said device comprising: a cylinder pivotally mounted on said second element and extending toward said first element; a cap on the cylinder's end nearest the first element having a central longitudinal bearing therein and a projection spaced from the bearing and extending toward the first element; a clip secured to the cap and having an arm extending beyond said projection to form a gap between the arm and the end of the projection; a stop washer having a central opening therethrough, said washer being fulcrumed in said gap for swinging movement; a piston in the cylinder; a piston rod secured to the piston and extending through the central bearing in said cap and through the central opening in said stop washer, said rod having its outer end pivotally connected to said first element; and a spring latch on said cap adapted to confine the stop washer to an inner operative location wherein it may swing to a position substantially normal to the piston rod to permit free passage of the piston rod outwardly through the stop washer or swing to another position binding it against the piston rod to prevent passage of the piston rod inwardly through the stop washer.

References Cited in the file of this patent

UNITED STATES PATENTS

264,049	Tucker	Sept. 5, 1862
836,303	Christensen	Nov. 20, 1906
1,544,117	Wyatt	June 30, 1925
1,655,798	Richards	Jan. 10, 1928
2,001,507	Stribling	May 14, 1935
2,252,215	Stearns	Aug. 12, 1941
2,588,174	Spielberg	Mar. 4, 1952
2,606,801	Shampaine	Aug. 12, 1952
2,703,907	Newell	Mar. 15, 1955

FOREIGN PATENTS

47,948	Germany	July 30, 1889